

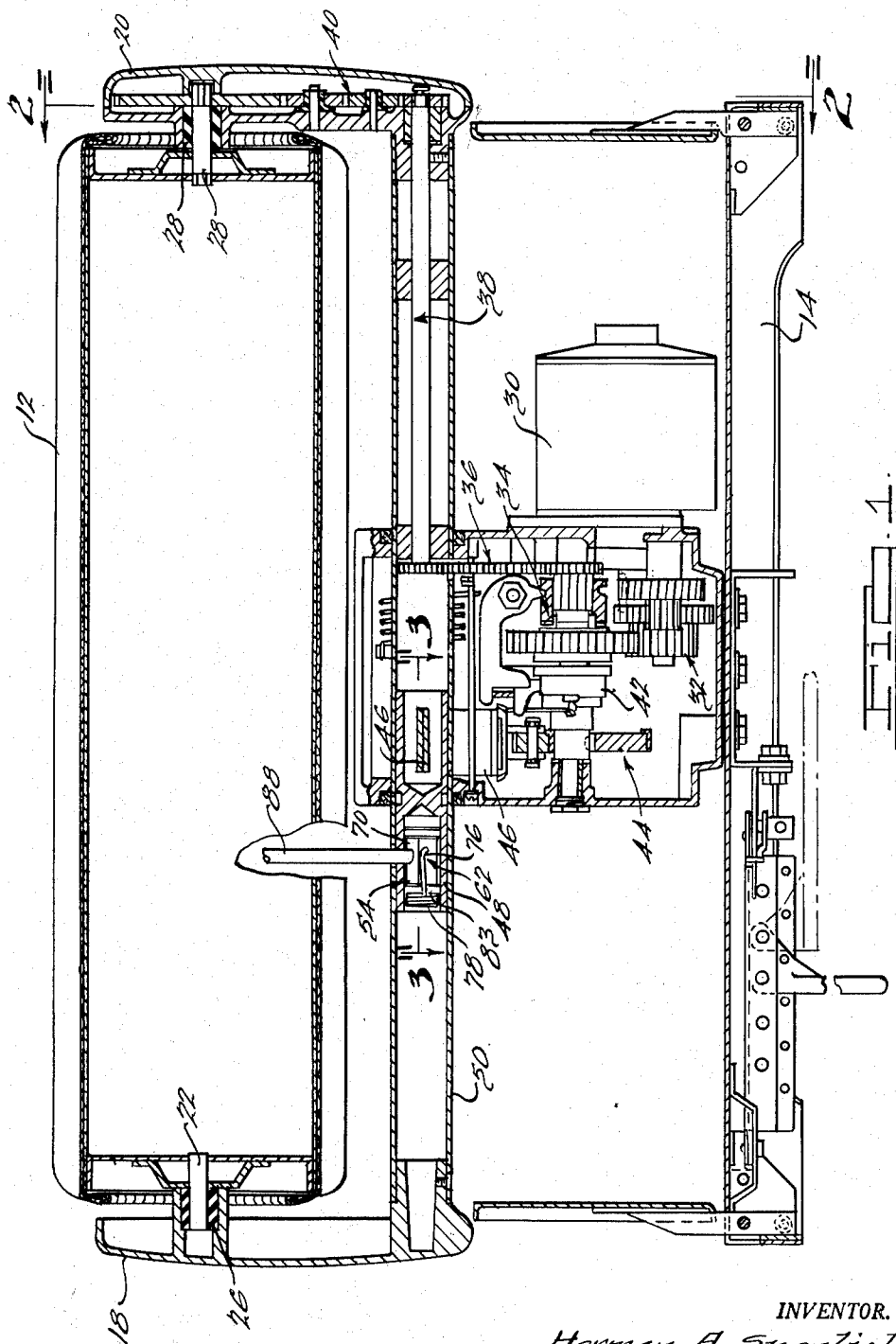
Jan. 10, 1956

H. A. SPERLICH
RELEASE MECHANISM

2,729,903

Filed Sept. 30, 1953

3 Sheets-Sheet 1



INVENTOR.

Herman A. Sperlich.

BY

Harness, Dickey & Pierce
ATTORNEYS

Jan. 10, 1956

H. A. SPERLICH
RELEASE MECHANISM

2,729,903

Filed Sept. 30, 1953

3 Sheets-Sheet 2

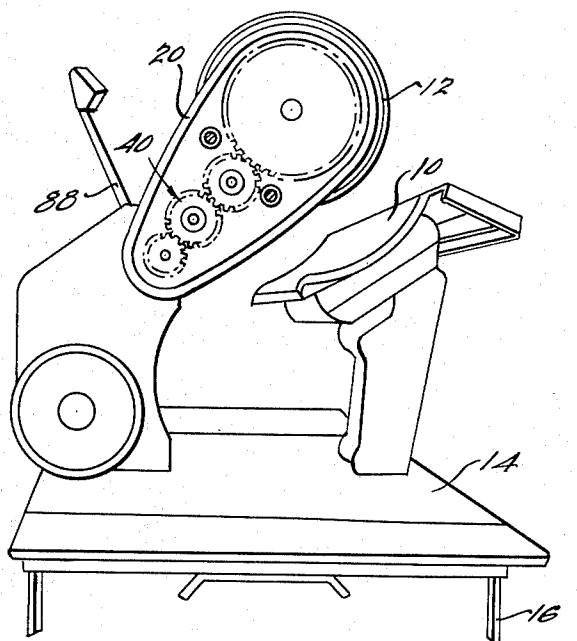


FIG. 2.

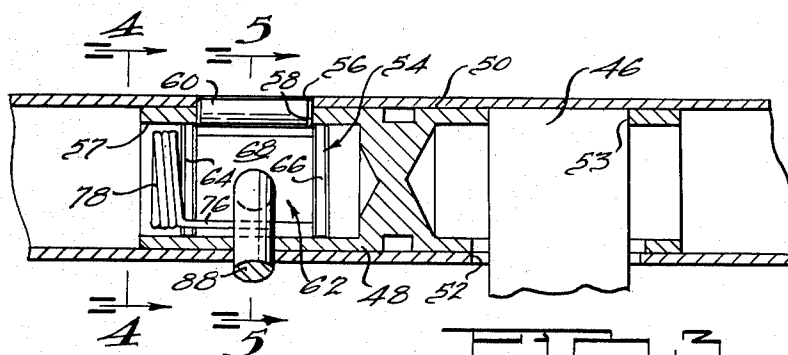


FIG. 3.

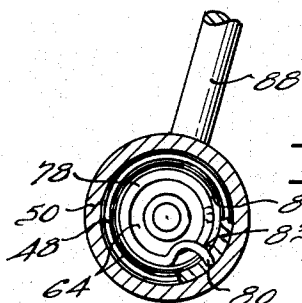


FIG. 4.

INVENTOR.

Herman A. Sperlich.

BY

Harvey, Dickey & Pierce
ATTORNEYS.

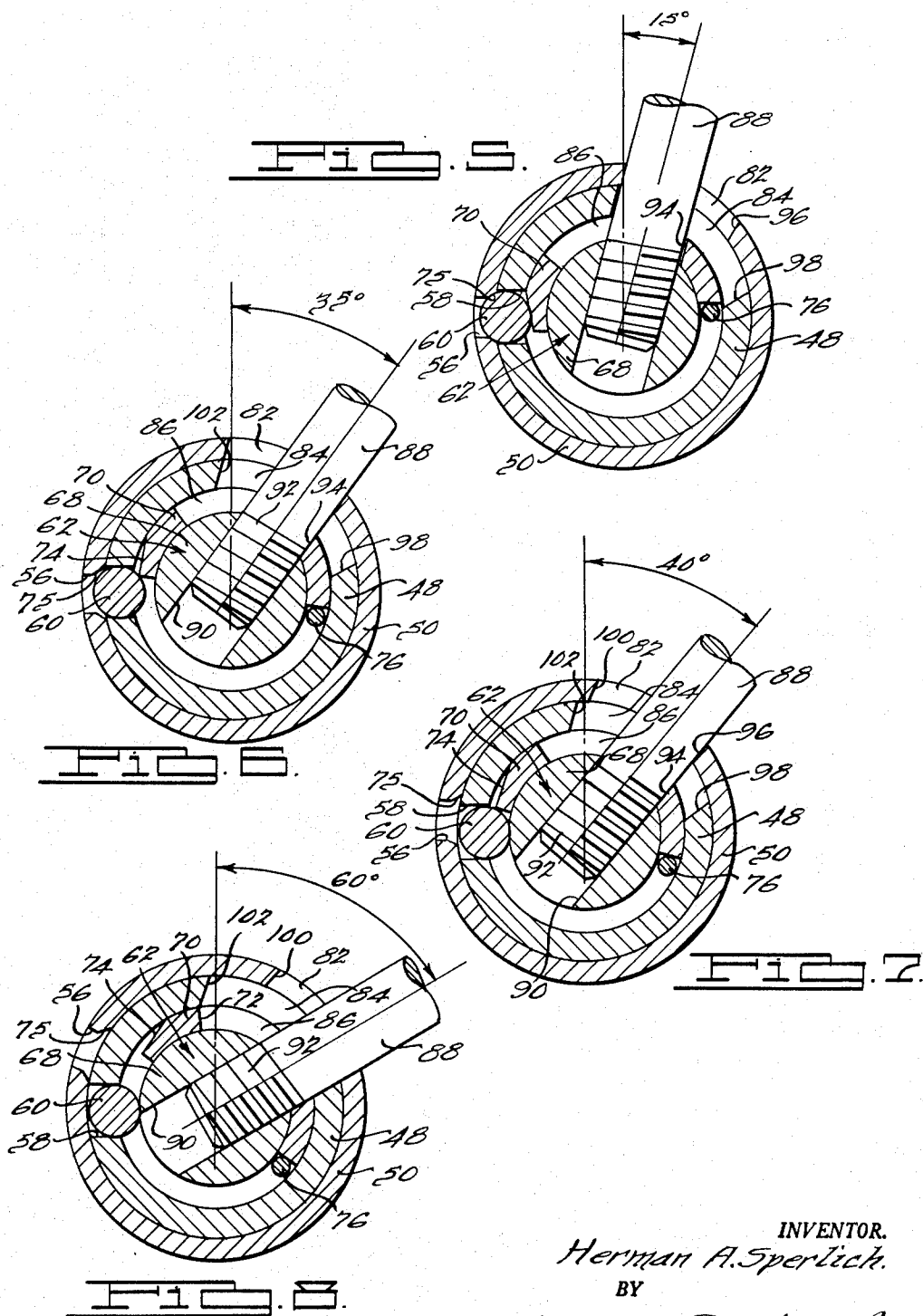
Jan. 10, 1956

H. A. SPERLICH
RELEASE MECHANISM

2,729,903

Filed Sept. 30, 1953

3 Sheets-Sheet 3



INVENTOR.
Herman A. Sperlich.

BY

Harnes, Dicker & Pines
ATTORNEYS.

1

2,729,903

RELEASE MECHANISM

Herman A. Sperlich, Highland Park, Mich., assignor to Ironrite, Inc., Mount Clemens, Mich., a corporation of Michigan

Application September 30, 1953, Serial No. 383,271

8 Claims. (Cl. 38—59)

This invention relates to ironing machines and more particularly to an improved emergency release mechanism for the ironing roll of such machines.

The primary object of the invention is to provide an improved emergency release mechanism for releasing the movable ironing roll from the stationary ironing shoe of an ironing machine, of the type illustrated and described in my copending application Serial No. 198,192, filed November 29, 1950, now Pat. No. 2,688,199, dated September 7, 1954.

Another object of the invention is to provide a novel emergency release mechanism for the ironing roll of an ironing machine, which is positive and fast in operation, simple and compact in construction, and economical of manufacture.

It is a further object of the invention to provide a novel emergency release mechanism, for manually separating the roll and shoe of an ironing machine, with a minimum of exertion, by a small forward movement of a spring loaded release handle which on the return stroke is adapted to restore the roll to its pre-release relation with the normal roll oscillating mechanism.

The above, as well as other objects and advantages of the invention, will become apparent from the following description taken in conjunction with the accompanying drawings wherein:

Figure 1 is an elevational sectional view, partially broken away, illustrating an ironing machine provided with an ironing roll release mechanism made in accordance with the invention;

Fig. 2 is an elevational view of the structure illustrated in Fig. 1, taken on the line 2—2 thereof;

Fig. 3 is a fragmentary sectional view of the structure illustrated in Fig. 1, taken on the line 3—3 thereof;

Fig. 4 is a sectional view of the structure illustrated in Fig. 3, taken on the line 4—4 thereof;

Fig. 5 is a sectional view of the structure illustrated in Fig. 3, taken on the line 5—5 thereof;

Fig. 6 is a view similar to Fig. 5, showing the release mechanism moved to an unlocking position preliminary to the release movement of the roll;

Fig. 7 is a view similar to Fig. 5, showing the release mechanism after the roll has been moved a slight distance; and

Fig. 8 is a view similar to Fig. 5, showing the release mechanism at the extreme point of roll release travel.

Referring now to the drawings, the illustrative embodiment comprises an ironing machine which, except for the improved emergency roll release mechanism described hereinafter, is described in detail in my aforementioned copending application.

As is best seen in Figs. 1 and 2, the ironing machine generally comprises an ironing shoe 10 and an ironing roll 12, suitably mounted on a base 14, which is provided with legs as 16. The roll 12 is rotatably supported on a pair of spaced arms 18 and 20, as by the shafts 22 and 24 which are carried in suitable bearings as 26 and 28. The roll 12 is adapted to be rotated by

2

means of the electric motor 30 acting through a driving means comprising, the gear train 32, clutch mechanism 34, gear train 36, shaft 38 and gear train 40. The motor 30 is also adapted to swing the roll 12 towards the shoe 10 into a working engagement therewith, by means of the gear train 32, clutch mechanism 42, the eccentric mechanism 44 and the lever 46, which is fixed in the pressure sleeve 48. As is best seen in Figs. 1 and 3, the roll supporting arms 18 and 20 are joined by a longitudinal tube 50 in which is oscillatably mounted the pressure sleeve 48. The rear side of the longitudinal tube 50 is provided with a circumferential aperture 52 through which the lever 46 passes, so as to permit it to be fixed in the pressure sleeve 48, as indicated at 53. The circumferential aperture 52 is formed to permit a substantial movement of the lever 46 relative to the tube 50. A more detailed description of the mechanism for rotating and pivoting the roll 12 is set forth in my aforementioned copending application.

The pressure sleeve 48 is adapted to be releasably fixed to the tube 50 by means of the release mechanism generally designated 54. As viewed in Figs. 3 and 5, the tube 50 is provided with a longitudinal aperture 56, on the front side thereof, which is disposed adjacent to the left end of the pressure sleeve 48. The left end of the pressure sleeve 48 is formed to provide a hollow structure 57. The front side of the pressure sleeve 48 is provided with a longitudinal aperture 58 in which is freely carried a lock pin 60. Oscillatably mounted in the hollow left end portion 57 of the pressure sleeve 48 is a spool 62 which is provided with two end portions 64 and 66 adapted to seat on the inner surface of the sleeve 48. The spool 62 is provided with a center portion 68, having a diameter smaller than the end portions 64 and 66 and on which is oscillatably mounted a release trigger 70. The release trigger 70 is substantially arcuate in cross-section and extends longitudinally of the spool 62, abutting against the spool end portions 64 and 66.

As is best seen in Figs. 5 and 6, the release trigger 70 is provided with a longitudinally disposed, inwardly slanting portion 74, on the front side thereof, which is adapted to cam the lock pin 60 outwardly into a locking engagement with the aperture 56 in the longitudinal tube 50, whereby the pressure sleeve 48 and the tube 50 are releasably locked against relative movement. In order to facilitate the engagement of lock pin 60 with the tube 50, the aperture 56 is provided with a tapered inner edge, as designated at 75, which is adapted to form a seat for the reception of lock pin 60. The rear side of the release trigger 70 engages a longitudinally extending portion 76 of the torsion spring 78, which is adapted to resiliently bias the release trigger into a locking engagement with the lock pin 60 and the aperture 56.

As is best seen in Figs. 3 and 4, the torsion spring 78 is disposed on the left end of the spool 62 and has one end anchored in the pressure sleeve 48 at a point as designated by the numeral 80. The left end portion 64 of the spool 62 is cut away along a portion of its circumference, between the points designated 81 and 83, to permit the longitudinal portion 76 of the torsion spring 78 to engage the release trigger 70. A plurality of coplanar and adjacently disposed arcuate apertures 82, 84 and 86 are respectively provided in the longitudinal tube 50, the pressure sleeve 48 and the release trigger 70 which are adapted to permit the passage therethrough of a release handle 88 which is fixedly secured in the spool 62 in the aperture 90, as by the threads 92.

In operation, assuming that the eccentric mechanism 44 has been actuated so that the roll 12 is disposed in a working engagement with the shoe 10, the release mech-

anism 54 will be in the normal position as illustrated in Fig. 5. In this position, it will be seen that the longitudinal arm 76 of the torsion spring 78 is adapted to continuously urge the release trigger 70 in a counterclockwise direction, as viewed in Fig. 5, so as to permit the slanting portion 74 thereof to cam the lock pin 60 outwardly into engagement with the aperture 56 and thereby releasably lock the pressure sleeve 48 and the longitudinal tube 50 together. This is the position in which the release mechanism 54 is disposed during normal operation of the ironing machine. During normal operation, the roll 12 may be oscillated by means of the eccentric mechanism 44, which provides approximately a one-half to three-quarters of an inch separation between the roll 12 and the shoe 10. Such amount of separation is well adapted for ordinary ironing and pressing use, but in case of an emergency a much wider separation between the roll and the shoe is desired. A novel feature of the present invention is the smooth, fast operating roll release action which is provided, coupled with the fact that a separation distance of approximately two inches is provided between the roll 12 and shoe 10. It has been found that a separation of approximately two inches between the roll and shoe is more than sufficient to quickly release any article of clothing, or other item, which may accidentally get caught between the roll 12 and the shoe 10.

As shown in Fig. 5, the normal operating position for the release handle 88 is approximately fifteen degrees from the vertical plane, towards the rear side of the machine. Assuming a need for an emergency release of the ironing roll 12, the operator may manually release the roll from the shoe 10 by exerting a rearwardly directed force on the release handle 88, so as to rotate the handle approximately 45°. The releasing action during such movement of the release handle 88 may be understood by considering Figs. 5 through 8. As the release handle 88 moves from the position shown in Fig. 5, it engages the rear end of the arcuate aperture 86, in the release trigger 70, at a point generally designated as 94, and continued movement of the handle 88 rotates the trigger release 70 in a clockwise direction against the retarding force of the torsion spring arm 76. Such movement of the release trigger 70 disengages the slanting front portion 74 from the lock pin 60, thereby permitting the lock pin to move inwardly and out of engagement with the aperture 56 in the longitudinal tube 50. The apertures 56 and 82 in the longitudinal tube 50 and the apertures 84 and 86 in the pressure sleeve 48 and the release trigger 70, respectively, are so spaced and are of a proper length, so that when the lock pin 60 moves out of the aperture 56, the release handle 88 will abut against the rear edge 96 of the aperture 82, and move the tube 50 in a clockwise direction, as viewed in Figs. 5 through 8. Continued rotation of the release handle 88 proceeds until the handle abuts against the rear edge of the aperture 84 in the pressure sleeve 48, at a point generally designated as 98. It will be seen that at this point, further releasing travel of the longitudinal tube 50, relative to the pressure sleeve 48, is prohibited by reason of the fact that the pressure sleeve 48 is held rigid by the lever 46 which is associated with the eccentric mechanism 44.

The operator may restore the ironing roll 12 to its pre-release relationship with the normal roll oscillating mechanism 44 by manually moving the release handle 88 counterclockwise, as viewed in Fig. 8. As the release handle 88 is rotated from the position shown in Fig. 8, it engages the forward end 100 of slot 82 in the longitudinal tube 50, and continued rotation of the handle actuates the tube 50 back to the initial starting position as shown in Fig. 5. The release handle 88 will be stopped in the position shown in Fig. 5, because in this position it abuts the forward end 102 of the pressure sleeve slot 84, the pressure sleeve being held rigid by the lever 46 which is associated with the eccentric mechanism 44.

During the return movement of the release handle 88, the torsion spring arm 76 resiliently biases the release trigger 70 back to the initial locking position shown in Fig. 5. Although the return movement of release trigger 70 is effected by torsion spring 78, its actual rate of return movement is governed by the return movement of release handle 88. Such action occurs because the rear end 94 of the release trigger slot 86 is urged by spring 78 into engagement with the release handle 88 during the return movement, thereby permitting the release trigger 70 to be moved only when the release handle is moved.

While the preferred embodiment of the invention has been shown and described, it will be understood that various modifications and changes may be made without departing from the spirit or scope of the invention.

What is claimed is:

1. In an ironing machine, the combination of, a stationary ironing shoe, an ironing element movable toward and away from said shoe, said ironing element being rotatably mounted on a pair of spaced arms, a longitudinal hollow member connecting said arms, a sleeve releasably locked in said longitudinal member, a lever fixed in said sleeve for oscillating said longitudinal member, whereby said ironing element is moved toward and away from said shoe, said longitudinal member and sleeve being provided with adjacently disposed longitudinal apertures, a lock pin carried in the aperture in said sleeve, a spool in said sleeve, a release trigger carried by said spool, a spring means carried by and anchored to said sleeve and adapted to resiliently bias said trigger so as to move said lock pin outwardly and into engagement with the aperture in said longitudinal member to releasably lock said sleeve and longitudinal member against relative movement, abutment means on said longitudinal member, a release handle operatively attached to said spool and adapted to actuate said release trigger against the biasing action of said spring means so as to disengage said lock pin from the aperture in said longitudinal member, and said release handle being adapted to engage said abutment means after said lock pin is disengaged from said longitudinal member, whereby said longitudinal member may be moved relative to said sleeve and said ironing element accordingly moved away from said ironing shoe without actuating said lever.

2. In an ironing machine, the combination of, a stationary ironing shoe, an ironing element movable toward and away from said shoe, said ironing element being rotatably carried by a longitudinal hollow member, a sleeve releasably locked in said longitudinal member, a lever fixed in said sleeve for oscillating said longitudinal member, whereby said ironing element is moved toward and away from said shoe, a locking means carried by said sleeve and adapted to releasably lock said longitudinal member and said sleeve against relative movement to permit said lever to move said ironing element toward and away from said shoe, a first means carried in said sleeve, an actuator carried by said first means for operating said locking means, a spring means anchored in said sleeve adapted to resiliently bias said actuator so as to move said locking means into engagement with said longitudinal member, and a releasing means operatively attached to said first means and adapted to move said actuator against the biasing action of said spring means to disengage said locking means and to move said longitudinal member relative to said sleeve so as to move said ironing element away from said ironing shoe without actuating said lever.

3. In an ironing machine, the combination of, a stationary ironing shoe, an ironing element movable toward and away from said shoe, said ironing element being carried by a longitudinal hollow member, a sleeve carried in said longitudinal member, means for releasably fixing said sleeve to said longitudinal member, a lever fixed in said sleeve for oscillating said longitudinal member, whereby said ironing element is moved toward and away

5

from said shoe, said means for releasably fixing said sleeve to said longitudinal member comprising, a lock pin carried by said sleeve, a first means carried in said sleeve adapted to engage and disengage said lock pin with said longitudinal member, and a second means operatively mounted in said sleeve adapted to actuate said first means, whereby said longitudinal member may be moved relative to said sleeve and said ironing element accordingly moved away from said ironing shoe without actuating said lever.

4. In an ironing machine, the combination of, a stationary ironing shoe, an ironing element movable toward and away from said shoe, said ironing element being rotatably carried by a longitudinal hollow member, a member carried inside said longitudinal member, a locking means adapted to releasably lock said members against relative movement, a lever fixed in said member for oscillating said longitudinal member, whereby said ironing element is moved toward and away from said shoe, a first means carried by said member adapted to operate said locking means, a second means carried by said member adapted to actuate said first means, and a third means operable by said second means after said locking means has been disengaged, whereby said longitudinal member may be moved relative to said member and said ironing element accordingly moved away from said ironing shoe without actuating said lever.

5. In an ironing machine, the combination of, a stationary ironing shoe, an ironing element movable toward and away from said shoe, said ironing element being rotatably carried by a longitudinal hollow member, a member carried by said longitudinal member, a lock pin carried in an aperture in said member and adapted to be moved into a releasable engagement with an aperture in said longitudinal member, a lever fixed in said member for oscillating said longitudinal member, whereby said ironing element is moved toward and away from said shoe, a first means carried by said member and operable to move said lock pin into said releasable engagement with an aperture in said longitudinal member, a second means carried by said member adapted to actuate said first means, and a third means operable by said second means, whereby said longitudinal member may be moved relative to said member and said ironing element accordingly moved away from said ironing shoe without actuating said lever.

6. In an ironing machine, the combination of, a stationary ironing shoe, an ironing element movable toward and away from said shoe, said ironing element being rotatably carried by a longitudinal hollow member, a member carried by said longitudinal member, a lock means adapted to releasably lock said members against relative movement, a lever fixed in said member for oscillating said longitudinal member, whereby said ironing element

6

is moved toward and away from said shoe, a release trigger carried by said member adapted to engage said locking means when moved in one direction and to disengage said locking means when moved in another direction, a first means carried by said member adapted to actuate said release trigger, and a second means operable by said first means after said locking means has been disengaged, whereby said longitudinal member may be moved relative to said member and said ironing element accordingly moved away from said ironing shoe without actuating said lever.

7. In an ironing machine, the combination of, a stationary ironing shoe, an ironing element movable toward and away from said shoe, said ironing element being rotatably carried by a longitudinal hollow member, a member carried by said longitudinal member, a locking means adapted to releasably lock said members against relative movement, a lever fixed in said member for oscillating said longitudinal member, whereby said ironing element is moved toward and away from said shoe, a spool carried by said member, a first means carried by said spool and adapted to operate said locking means, a release handle operatively attached to said spool and adapted to actuate said first means to disengage said locking means, a spring means carried by said member adapted to actuate said first means to engage said locking means, and a second means operable by said release handle after said locking means has been disengaged, whereby said longitudinal member may be moved relative to said member and said ironing element accordingly moved away from said ironing shoe without actuating said lever.

8. A mechanism for releasably connecting two members against relative movement comprising, a sleeve rigidly connected to one of said members and being oscillatably mounted in the other of said members, a lock pin carried in an aperture in said sleeve, a spool oscillatably mounted in said sleeve, a release trigger carried by said spool and adapted to move said lock pin into a locking engagement with said other member, means adapted to resiliently bias said trigger so as to move said lock pin into said locking engagement, a release handle operatively attached to said spool and adapted to actuate said release trigger against the biasing action of said spring means so as to disengage said lock pin, and abutment means on said other member adapted to be engaged by said release handle after said lock pin is disengaged from said other member, whereby said other member may be moved relative to said sleeve and said one member.

References Cited in the file of this patent

UNITED STATES PATENTS

2,260,799 Bush ----- Oct. 28, 1941